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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/787,496	10/17/2001	Keith Mario Torpy	10032.00	3949

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EXAMINER	
FASTOVSKY, LEONID M	
ART UNIT	**PAPER NUMBER**
3742	

DATE MAILED: 10/06/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/787,496	TORPY ET AL.	
	Examiner	Art Unit	
	Leonid M. Fastovsky	3742	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 August 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *30-50* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *30-50* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *09 June 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments, see Remarks, filed 8/22/05, with respect to the rejection(s) of claim(s) 30-50 under 35 USC 103 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Belitskii et al.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 30-32, 34-37, 41 and 50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Auding et al in view of Belitski et al.

Auding et al discloses substantially the claimed features including a thin film heating element (Fig. 1) including a layer of electrically conductive metal oxide on electrically insulating substrate (Abstract), the metal oxide layer being doped with foreign atoms.. Further, Auding et al discloses the metal oxide layer further including a donor element -an antimony and acceptor element –zinc in a quantity from 3 to 5 at. % (col. 4, lines 53-56), a heating element being stable at a temperature of 600 degree C (Col. 1, lines 62-65), and at power density

exceeding 10 W per cm square (Col. 2, lines 7-10), and pyrolysis method of depositing (Col. 4, lines 57-60).

However, Auding does not disclose the layer being doped with two or more rare earth elements in substantially equal quantities.

Belitskii discloses a thin film electric heater comprising two rare earth elements of Y and Ce in substantially equal quantities in a range of 4-5 (Table).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Auding's invention by using rare earth elements in an equal quantities as taught by Belitskii in order to provide a satisfactory stability in the high power density application of the heating element.

As for claim 32, Belitskii discloses a thin film-type heater comprising two rare earth elements such as cerium and lanthanum (Abstract and Table).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Auding's invention by using cerium and lanthanium as taught by Belitskii et al and select them in equal quantities in order to provide a satisfactory stability in the high power density application of the heating element.

4. Claim 33 is rejected under 35 U.S.C. 103(a) as being unpatentable over Auding et al in view of Belitskii et al and further in view of Cooper (5,616,266). Auding et al in view of Belitskii et al discloses substantially the claimed invention, except that a metal oxide is a tin oxide. Cooper shows a metal oxide being a tin oxide (Abstract). It would have been obvious to one having ordinary skill in the art at the time the invention was made to use a tin oxide in the invention of Auding in

view of Belitskii to allow delivery of substantial power at lower operating temperatures and low power densities for greater efficiency as taught by Cooper (Abstract, lines 16-18).

5. Claims 38-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Auding in view of Belitskii and further in view of Sano et al.

Auding in view of Belitskii discloses substantially the claimed invention, except concentration of rare earth elements. Sano et al discloses a concentration of rare elements between 2.5- 5 mol % (Abstract). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the invention of Auding in view of Belitskii to use a concentration of rare elements as taught by Sano to be suitable for heating element applications and for better stability (Abstract).

6. Claim 42 is rejected under 35 U.S.C. 103(a) as being unpatentable over Auding in view Belitski and further in view of Aslam et al.

Auding in view of Belitskii discloses substantially the claimed invention, except a step of annealing. Aslam discloses a step of annealing during a manufacturing of the thin film electrical heating element at temperature in the range of 850 degree to 950 degree (Col. 2, lines 19-29). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the invention of Auding in view of Belitskii to use a method of manufacturing a thin film heating element including a step of annealing as taught by Aslam in order to improve the conductive properties of the heating element (Col. 2, lines 1-29).

7. Claims 43-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Auding in view of Belitskii and further in view of Flory.

Auding in view of Belitskii discloses substantially the claimed invention, but does not disclose a method of manufacturing and a metal layer free of fluorine. Flory discloses a method of producing a conductive metal oxide layer free of fluorine (Abstract). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the invention of Auding in view of Belitskii to use a method of manufacturing including a metal oxide layer free of fluorine as taught by Flory to simplify deposit control on metal deposits.

8. Claims 45-47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Auding in view Belitski and Flory and further in view of Brown.

Auding in view of Belitskii and Flory discloses substantially the claimed invention, except a monobutyl tin trichloride. Brown discloses a method of manufacturing a doped tin oxide film using solution of monobutyl tin trichloride (Col. 5, lines 20-25). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the invention of Auding in view of Belitskii and Flory to use a monobutyl tin trichloride in the method of manufacturing to give the doped tin oxide film the desired conductivity and emissivity characteristics as taught by Brown (Col. 5, lines 20-25).

9. Claim 48 is rejected under 35 U.S.C. 103(a) as being unpatentable over Auding in view of Belitskii and Flory and further in view of Aslam et al.

Auding in view of Belitskii and Flory discloses substantially the claimed invention, except a step of annealing. Aslam discloses a step of annealing during a

manufacturing of the thin film electrical heating element at temperature in the range of 850 degree to 950 degree (Col. 2, lines 19-29). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the invention of Auding in view of Belitskii and Flory to use a method of manufacturing a thin film heating element including a step of annealing as taught by Aslam in order to improve the conductive properties of the heating element (Col. 2, lines 1-29).

10. Claim 49 is rejected under 35 U.S.C. 103(a) as being unpatentable over Auding in view of Belitskii and Flory and further in view of Peterson (3,306,768). Auding in view of Belitskii and Flory discloses substantially the claimed invention, but does not disclose the method carried out in substantially anhydrous conditions. Peterson discloses a method of forming tin oxide films carried out in substantially anhydrous conditions (col. 3, lines 5-14). It would have been obvious to one having ordinary skill in the art to modify the invention of Auding in view of Belitskii and Flory to include substantially anhydrous conditions as taught by Peterson wherein the manufacturing of the heating element is held at a suitable moderate temperature.

Response to Arguments

11. Applicant's arguments with respect to claims 30-50 have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leonid M Fastovsky whose telephone number is 571-272-4778. The examiner can normally be reached on M-Th. 8.00 am -6.00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robin Evans can be reached on 571-272-4777. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0861.

L Fastovsky

Leonid M Fastovsky
Examiner
Art Unit 3742

Lmf

9/28/05

Robin O. Evans

ROBIN O. EVANS
SUPERVISORY EXAMINER

10/2/05